

Appl. No. 09/674,648
Amdt. dated August 7, 2006
Reply to Office action of March 28, 2006

REMARKS/ARGUMENTS

Claims 1 and 8 have been amended to clarify that the bearing rings each have a radial thickness between outer and inner surfaces that is equal completely around the tube or cam, and to clarify that the bearer rings are formed in a separate method. Claims 12 has been amended to clarify that the alloys referred to in the claim are alloys of aluminum, magnesium, or titanium. Claim 14 has been amended to delete the preference language and claim 18 has been added to claim the deleted devices.

The rejection of claim 12 and 14 under 35 U.S.C. § 112, second paragraph, is believed obviated by the amendment to those claims addressing the Examiner's objections.

The rejection of claims 1 – 5, 8, 14, 16, and 17 under 35 U.S.C. § 102(b) as being anticipated by Suzuki U.S. Patent 4,660,269, the rejection of claim claims 1 – 5, 8, 11, 12, and 17 under 35 U.S.C. § 102(b) as being anticipated by Ebbinghaus et al. U.S. Patent 5,259,268, and the rejection of claims 8, 11, 14, 15, and 17 under 35 U.S.C. § 102(b) as being anticipated by Hartnett et al. U.S. Patent 5,259,268 are all traversed. Although the Examiner separately states the three rejections, they all are based on the same interpretation of the claim language and so will be discussed together. In light of the amendments to claims 1 and 8, none of the cited reference anticipate, teach or suggest the invention.

As an initial matter, the examiner is thanked for the courteous and helpful telephone interview conducted on July 17, 2006. The language in claims 1 and 8 referring to the radial thickness of each bearing ring was developed at that interview, which the Examiner acknowledged overcame the rejections under 35 U.S.C. § 102(b). Subject to any further search by the examiner and his consideration of the unobviousness it is believed that the claims are all in condition for allowance.

More particularly, the amendment makes it clear that the claims are directed to cams that are formed from the material of the tube itself and that the bearer rings are not cams, nor could they be in view of the fact that they each have an even wall thickness, made absolutely clear by the amendment.

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In any case, the bearer rings only provide the surface with hardness, strength and wear resistance. It is the specific relationship between the hollow cam shaft forming hollow cams and the bearer rings on the cams that makes up the invention. Suzuki has a hollow cam shaft that needs cam discs to form cams and actually has recessions in place of the cams in which the cam discs are located and locked. The difference is an increased eccentric mass with the Suzuki design, as compared to the present invention.

Ebbinghaus is very close to Suzuki describing a hollow cam shaft with cam discs secured thereon. The cam shaft has a protrusion in place of the cams in order to secure the cam discs. The increased thickness of the cam discs also result in a considerable eccentric mass, as with Suzuki.

Neither Suzuki nor Ebbinghaus teach a cam shaft having bearer rings which have an even wall thickness in a radial direction. Neither Suzuki nor Ebbinghaus teach thinning out of the cams, by forming them from the hollow tube, in order to reduce the eccentric mass of the cams.

Hartnett also does not teach nor suggest the present invention. In fact, Hartnett makes use of a straight tube as a cam shaft and cam discs attached thereto in a more or less conventional way.

A Notice of Allowance is respectfully solicited.

A Petition for Extension of time is also enclosed.

The Commissioner is hereby authorized to charge payment of any fees required associated with this communication or credit any overpayment to Deposit Account No. 50-3881. If an extension of time is required, please consider this a petition therefore and charge any additional fees which may be required to Deposit Account No. 50-3881. A duplicate copy of this paper is enclosed.

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Respectfully submitted,



Robert Berliner
Registration No. 20,121

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(213) 533-4171